developed in the region of his chest, where the flies had gained access. This suggests *Chrysops,* the members of which are commonly called deer-flies, and it is extremely likely that this genus may act as egg-carrier for *Dermatobia* quite as frequently as do mosquitoes. It should be stated that the *Dermatobia* flies are not yellow, but of a dark metallic green.

As to the exact modus operandi in the case of *Dermatobia,* it is quite certain that oviposition on foliage is not practised, but that the fly captures the elected carrier and holds it while gluing the eggs firmly by their caudal end to the underside of its body, leaving the cephalic end of the eggs free and in such position that it will come in immediate contact with the skin of any animal bitten by the carrier. Once the carrier alights on a warm-blooded animal, the heat of the latter's body causes the maggot to spring the lid of the chorion and to work its way immediately and doubtlessly very rapidly into the skin, most probably by way of a hair follicle. As suggested by Mr. Crawford, it is practically certain that the empty chorion remains attached to the carrier after the exit of the maggot.

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U. S. NATIONAL MUSEUM,
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RAPID METHOD OF COUNTING BACTERIA IN MILK[1]

THE satisfactory control of milk supplies would be facilitated by a rapid method of determining the bacterial content. There can be no question but what the most accurate count is obtained by incubating plate cultures for five days at room temperature, but, in spite of this, two days at 37° C. is the only standard method. This has been adopted because of the urgent demand for a quick answer. Because of the advantage of obtaining results rapidly, the direct microscopical examination of milk is frequently urged. In spite of the obvious weaknesses of this method, such as the errors in measuring the small quantities needed or in centrifuging, and the fact that dead bacteria can not be differentiated from the living, this method has its earnest advocates.

If it were possible to use easily measurable quantities of milk, *i. e.,* from 1/10 to 1 cc., and grow the germs contained therein so that only those capable of forming colonies would be counted, and if this count could be obtained within, say, six hours, the demands in the case would be reasonably met.

If such an accurate count could be obtained in a few hours, it would be possible for the producer or dealer to determine actually the bacterial content of his product before putting it on the market. This would also enable the health official to hold a sample of milk suspected of being beyond the limits permitted until the count could be actually obtained, when the samples in question could be either passed or justly condemned. Under present conditions, when the bacteria are determined by ordinary cultural procedures, such a course is out of the question because it is not possible under any conditions to obtain a count in less than forty-eight hours.

It is possible now to suggest a rapid method, which, I believe, will meet any reasonable demands. The method is a combination of the direct count and the culture methods and is obtained by making small plate cultures on a microscopic slide. These little plates are incubated for several hours (three to six), then the medium is dried down and stained so as to bring out in sharp relief, when examined under the microscope, the minute colonies which have developed.

It is not proposed to go into definite details in this preliminary paper[2] but rather to define the lines along which the investigation is proceeding. In explanation of the methods, however, it may be said that about one tenth of a cubic centimeter of milk is mixed with standard agar and spread over a definite area of a sterile glass slide. When the agar is hard, this little plate culture is put in the incubator for about six hours, under conditions which prevent evaporation. It is then dried, given

[1] Preliminary note. Publication authorized by the Director of the Wisconsin Experiment Station.

[2] An extended account of the method and the results obtained in a series of analyses will soon appear.

a preliminary treatment to prevent the agar from firmly binding the strain, stained, decolorized and cleared. When this dried and stained plate culture is viewed under the microscope, the little colonies are definitely stained and appear highly colored on a colorless or slightly colored background. The colonies appear of considerable size under the low powers of the compound microscope. In fact after four hours of development these colonies are sometimes distinctly visible to the naked eye. Under the oil immersion objective the individual cells are easily seen and the different kinds of bacteria can be separated one from another by the morphology of the cells and their arrangement in the microscopic colonies.

It may be further said that the counts obtained by this method are quite similar to those secured by the ordinary plate method. per c.c. have been examined by both methods. The results obtained indicate that the difference between the counts secured by the rapid method and the ordinary or standard method usually amounts to little more than the variation which occurs between duplicate plates, or between different dilutions in the same analysis by the ordinary plate method.

In the case of recently pasteurized milks or milks with a very low bacterial content, it is necessary to incubate the little plates somewhat longer, *i. e.*, for eight hours.

It seems fair to conclude then that we have here a method which will enable the bacteriologist to obtain a count of the bacteria in milk that corresponds very closely with counts obtained by the standard method in from one eighth to one sixth of the time required by the standard method, and also that the higher the bacterial content, the shorter the time required for the analysis.

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SOCIETIES AND ACADEMIES

THE NEW ORLEANS ACADEMY OF SCIENCES

THE academy met in the Stanley Thomas Hall, Tulane University, on Tuesday, May 18, the final meeting of the year. Miss Edwina Abbott presented a paper on the transfer of mental habits in children. This is the first time in its history of fifty-one years that the academy has been addressed by a woman. Miss Abbott attempted to prove what has been projected as a theory previous to this that one sort of training fits for another, for instance that Greek and Latin train the memory for other things and mathematics trains the reason for other things, or that neatness in one thing tends towards neatness in others. Her tests were made with children who were trained to select pairs of words, not adjacent, on cards and were then taken to a table on which many objects were placed, left there two minutes, then asked to state what objects they had seen. Memory exercises were also given throughout the term. Two sets of children were selected; one was trained, the other untrained. The training was done from November to May. Three tests were made, one in November, one in May and one in between. The trained children improved from 46 to 76 per cent., the untrained from 51 to 71 per cent., a difference of 33⅓ per cent. in favor of the trained children.

Dr. Bean presented two negro brains before the academy to demonstrate differences in the size and shape of the pons and cerebellum. One brain is from a negro man, aged 41, a hyper-onto-morph, small, thin, wiry, with slight muscular development, who weighed about 100 pounds. The other is from a negro man, aged 41, a meso-onto-morph, tall, well developed, well nourished, with great muscular development, who weighed about 200 pounds. The pons and cerebellum of the hyper-onto-morph are small in both antero-posterior and transverse diameters, 25 and 32 millimeters, respectively, but not so flat as in the meso-onto-morph, where the antero-posterior and transverse diameters are large, 29 and 40 millimeters, respectively. This condition is true not only in the two brains presented, but in eighteen other brains so far examined the same relative difference is noted where the types are distinct. Dr. Mann called attention to the difference in size and shape of the convolutions in the cerebellum of the two brains. The meso-onto-morph has more numerous, more complete and smaller convolutions of the cerebellum than the hyper-onto-morph. The brains of the two men weigh the same, hyper-onto-morph 1,417 grams, meso-onto-morph 1,421 grams.

R. S. COCKS